

## ABSTRACT OF THE DISCLOSURE

The invention offers a calculation method and program capable of performing line-by-line calculations using a Voigt function at speeds of 50-100 times what is conventional. The Voigt function is divided into a first range around the peak and a skirt portion not contained in the first range. The first range is replaced by a cubic function, and the skirt portion is taken as the Voigt function to perform calculations in predetermined ranges of equal intervals. Furthermore, the peak area of the first range is replaced by a cubic function, and the skirt portion is taken as a function representing the difference between the Voigt function and the cubic function to perform calculations in second predetermined intervals smaller than the aforementioned first predetermined intervals. This is repeated until the desired level of precision is reached. Additionally, interpolation is performed by dividing these predetermined intervals into four or five parts.